Exclusion of an endometrioma on transvaginal ultrasound does NOT exclude endometriosis

Historically, if a woman with chronic pelvic pain does not have an endometrioma or obvious adenomyosis on transvaginal ultrasound assessment, then she is deemed to have a "normal pelvis". A significant proportion of these women will subsequently have endometriosis at laparoscopy. This may range from superficial peritoneal disease to severe disease with pouch of Douglas (POD) obliteration and underlying posterior compartment anterior rectal deep infiltrating endometriosis (DIE). The latter has a prevalence of between 5 and 35% depending on the population studied. Severe endometriotic disease requires highly skilled and complex laparoscopic surgery which is not without risk and may involve colo-rectal input. Such surgical procedures often mean long operating times and require excellent technical skills. If not diagnosed pre-operatively, severe endometriotic disease in the hands of a general gynaecologist may result in a "look and go" diagnostic laparoscopy with the woman then needing further operative laparoscopy surgery in an appropriate tertiary referral multi-disciplinary unit. Therefore pre-operative mapping of endometriosis disease location and extent is essential if we are to optimise surgical outcomes.

As sonologists or sonographers, when scanning the pelvis, we should systematically evaluate not only the uterus and ovaries in real-time but also the anterior, lateral and posterior compartments of the pelvis for the underlying superficial endometriosis and/or DIE. The anterior compartment should be assessed in real-time to fully evaluate the anterior vaginal fournix (using sonovaginography) and bladder for vaginal or bladder DIE. The lateral compartment should be assessed using "soft markers" such as ovarian mobility in all women with suspected endometriosis. This can be determined using real-time transvaginal ultrasound (TVS) by gently pressing the tip of the transvaginal probe against the ovary to see whether it moves freely or if it is adherent to either the uterus medially or pelvic side wall laterally. The lack of ovarian mobility can be an indirect sign that there is underlying superficial or peritoneal endometriosis. Evaluation of the posterior compartment should include the posterior vaginal fournix (sonovaginography), uterosacral ligaments, POD, anterior rectal wall and anterior recto-sigmoid wall. Routine evaluation of the POD with TVS in real-time using the "sliding sign", to exclude or confirm POD obliteration, should be done in every woman with chronic pelvic pain. If the "sliding sign" is positive, i.e. the anterior rectal wall glides smoothly over the posterior cervix, then the POD is deemed to be non-obliterated. Conversely, if the "sliding sign" is negative, i.e. the anterior rectal wall does not glide smoothly over the posterior cervix, then the POD is said to be obliterated. Similarly, posterior compartment evaluation should also mean careful assessment of the full length of the anterior rectal longitudinal muscle as far cephalically as the recto-sigmoid junction. This is also done using TVS and is essential to exclude or confirm bowel endometriosis.

It is not an easy task, but with appropriate advanced gynaecological ultrasound training, "pattern recognition" of severe forms of endometriosis can be achieved. The learning curve is long and to be honest, it took me almost four years to visualise my first anterior rectal endometriotic nodule! I was looking too caudally, i.e. in the region of the rectovaginal septum which is almost always clear of endometriotic disease. In fact, DIE usually commences at the level of the retro-cervix then migrates cephalically or caudally; it can also invade anteriorly into the posterior vaginal fournix or posteriorly through the lumen of the rectum.

The last challenge in my learning curve for endometriosis prediction is to consistently predict uterosacral ligament DIE using TVS. I find this even more difficult than predicting the depth of penetration of endometriotic nodules located in the anterior bowel wall (i.e. extra-mucosal or full thickness). There is no doubt that we can all be up skilled to learn the above additional concepts relating to ultrasound-based "pattern recognition" in endometriosis. I believe that full compartmental assessment (anterior, lateral and posterior) of the pelvis should become an everyday occurrence in all women with potential underlying endometriosis. This benchmark standard of ultrasound care will redefine the concept of a "normal" pelvic ultrasound and in turn benefit not only the laparoscopic surgeons in planning these difficult procedures but also mean that the women affected have the best chance for optimising surgical outcomes.

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